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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/409,338	09/30/1999	MAKOTO YAMADA	030662-047	5232

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EXAMINER

SHOSHO, CALLIE E

ART UNIT PAPER NUMBER

1714

DATE MAILED: 09/17/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/409,338

Applicant(s)

YAMADA ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 8-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 6/26/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/409,338 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Objections

2. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11, which depends on claim 1, recites that the basic polymer has “a side-chain containing a nitrogen atom-containing heterocyclic group”. However, claim 1 recites that the basic polymer has “a side-chain containing 1-imidazolyl”. Thus, claim 11 fails to further limit the subject matter of claim 1 given that the scope of claim 11 is broader than that of claim 1. That is, while claim 1 requires that the basic polymer have side chain containing 1-imidazolyl, in claim 11, the side chain can be any nitrogen atom-containing heterocyclic group.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-2, 5, and 8-11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 has been amended to recite that the glycerol is “contained in an amount of not less than 2 weight %”. It is the examiner’s position that this phrase fails to satisfy the written description requirement under the cited statute since there does not appear to be a written description requirement of the above cited phrase in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163.

It is noted that the recitation that glycerol is “contained in an amount of not less than 2 weight %” clearly encompasses the use of glycerol in any amount greater than or equal to 2 weight %, i.e. 10, 20, 50, etc. weight %. As support for the insertion of this phrase into the claim, applicants point to the working examples. However, in the working examples, the glycerol is present only in amounts of 2, 3, and 5 weight %. There is no disclosure of using glycerol in any other amounts, i.e. 10, 20, 50 weight %. Thus, while there is support for the use of glycerol in amounts of 2, 3, and 5 weight %, there is no support for the use of glycerol “in an amount of not less than 2 weight %”. Such phrase clearly encompasses all amounts greater than or equal to 2 weight %, i.e. 10, 20, 50, etc., which are not supported by the disclosure, as originally filed.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11, which depends on claim 1, recites that “the basic polymer has a side-chain containing a nitrogen atom-containing heterocyclic group”. However, given that claim 1 already requires that the basic polymer have “a side-chain containing 1-imidazolyl”, the scope of claim 11 is confusing because it is not clear if this is referring to the 1-imidazolyl group or another group present on the side chain. If the former is true, it appears that claim 11 is redundant and should be cancelled. Clarification is requested.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-2, 5, and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nigam et al. (U.S. 5,973,025) either alone or in view of Bates et al. (U.S. 5,958,999) and Schwarz (U.S. 5,665,150).

Nigam et al. discloses an ink jet ink having a viscosity of 1.5-15 cP wherein the ink comprises aqueous medium, azo dye which is dissolved in aqueous medium, glycerol, and basic polymer corresponding to presently claimed formula I wherein L is a single bond, -CO-, arylene, or alkylene and Am is 1-imidazolyl. It is disclosed that the polymer has a molecular weight of preferably 300-100,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.4, lines 11-13, col.5, lines 45-46, col.8, lines 52-53, col.9, lines 46-50, col.10, lines 42-46, col.11, lines 34 and 59-61, col.12, lines

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41-42 and 48-49, col.13, lines 40-45, col.18, lines 42-43, col.20, lines 6-15, col.32, lines 25, and col.33, lines 15-17).

There is no disclosure in Nigam et al. of the amounts of glycerol and basic polymer present in the ink with the exception of the disclosure of amounts as set forth in the examples.

On the one hand, it is noted that Example 44 discloses ink comprising dye, glycerol, and as calculated, approximately 2% basic polymer. However, the basic polymer utilized in this example is not the basic polymer presently claimed, i.e. having a side-chain containing 1-imidazolyl, but rather a poly(vinylpyridine). However, it would have been obvious to one of ordinary skill in the art given the disclosure of the equivalence and interchangeability of the basic polymers disclosed by Nigam et al., that any of the basic polymers including those having a side-chain containing 1-imidazolyl, would be suitable for use with glycerol and would also be utilized at 2% as set forth in the example, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

On the other hand, Bates et al., which is drawn to ink jet inks, discloses the use of 0.1-10% basic polymer containing nitrogen-containing heterocyclic groups having a side-chain containing 1-imidazolyl in order to produce ink with good waterfastness and stability (col.26-34) while Schwarz (U.S. 5,665,150) disclose that aqueous ink jet inks typically comprise 5-50% humectant such as glycerol (col.13, lines 32-34, 37, and 47-52).

In light of the motivation for using specific amount of polymer disclosed by Bates et al. and specific amount of glycerol disclosed by Schwarz as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of polymer and glycerol

in the ink if Nigam et al. in order to produce an ink with good waterfastness and stability that will not dry out and clog the printer nozzles, and thereby arrive at the claimed invention.

10. Claims 1-2, 5, 8-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al. (U.S. 5,958,999) in view of Breton et al. (U.S. 5,938,827), Nigam et al. (U.S. 5,973,025), and Schwarz (U.S. 5,665,150).

Bates et al. disclose an ink jet ink containing dye soluble in the ink composition, aqueous medium, glycerol, and 0.1-10% basic polymer which corresponds to presently claimed formula I wherein L is a single bond and Am is a nitrogen atom-containing heterocyclic group including vinylimidazole. It is disclosed that the polymer has a molecular weight of less than 50,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.3, lines 15-35, col.4, lines 11-15, col.5, lines 48-50, col.7, lines 16-17, 36, and 48-57, col.9, line 65, col.10, lines 20 and 30, and example 11).

Bates et al. does not explicitly disclose the type of dye used, but does disclose the use of a dye known as Fast Black 2 (col.17, lines 3-4). Breton et al., which is drawn to ink jet inks, discloses that Fast Black 2 is indeed an azo dye (col.8, line 6 and last two formula).

The difference between Bates et al. and the present claimed invention is the requirement in the claims of (a) amount of glycerol and (b) the viscosity of the ink.

With respect to difference (a), it is noted that Bates et al. disclose the use of glycerol, but there is no explicit disclosure of the amount in which it is used.

However, on the one hand, Bates et al. disclose that the amount of additives, including humectants such as glycerol, utilized depends on the molecular weight of the polymer, nature of the polymer, viscosity of the ink, etc. (col.7, lines 36-37 and 41-46).

In light of the above and given that Bates et al. disclose ink as presently claimed including identical type of polymer, it would have been within the skill level of, as well as obvious to, one of ordinary skill in the art to choose amounts of glycerol, including those presently claimed, in order to produce ink which will not dry out and clog the printer nozzles, and thereby arrive at the claimed invention.

On the other hand, Schwarz (U.S. 5,665,150) disclose that aqueous ink jet inks typically comprise 5-50% humectant such as glycerol (col.13, lines 32-34, 37, and 47-52).

In light of the motivation for using specific amount of glycerol disclosed by Schwarz as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of glycerol in the ink if Bates et al. in order to produce an ink that will not dry out and clog the printer nozzles, and thereby arrive at the claimed invention

With respect to difference (b), Bates et al. does not explicitly disclose the viscosity of their ink jet inks. However, given that if the ink viscosity is too high, the ink clogs the printer nozzles, it would have been within the level of one of ordinary skill in the art to control the viscosity of the ink jet ink to avoid printer clogging. Evidence to support this position is found in Nigam et al. which discloses that the viscosity of an ink is adjusted depending on its desired utility, and that for ink jet inks, the viscosity is typically 1.5-15 cP (col.18, lines 38-45).

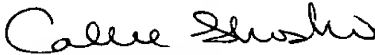
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In light of the above, it would have been obvious to one of ordinary skill in the art to control the viscosity of the ink jet ink of Bates et al. to 1.5 to 15 cP in order to produce an ink that will not clog the printer nozzles, and thereby arrive at the claimed invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Examiner
Art Unit 1714

CS
9/13/02